

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.: 10/716,563

Applicants : Dae-Seob KWEON

Confirmation No.: 7056

Filed : November 20, 2003

Group Art Unit: 2852

Customer No. : 502827

Examiner: Susan Shuk Yin Lee

Title: IMAGE FORMING APPARATUS HAVING A CLEANING UNIT AND A METHOD THEREOF

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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

REQUEST FOR RECONSIDERATION AFTER FINAL REJECTION

Sir:

In response to the Final Office Action mailed January 26, 2006, reconsideration of the rejections is respectfully requested in light of the following remarks.

Claims 1-25 are pending in this application.

A. Allowable Subject Matter

Applicant notes with appreciation the Examiner's indication that claims 1-6 are allowed and that claims 11 and 14-21 contain allowable subject matter.

B. §102 Rejection Over Kondo

The Office Action rejects claim 23 under 35 U.S.C. §102(b) as being anticipated by JP 665 (the English-language abstract of Japanese Patent No. 59-172665). Applicant respectfully traverses this rejection for at least the reasons stated below.

Claim 23 is directed to "an image forming apparatus comprising ... a developing unit comprising ... a toner supplying roller having fur disposed around a circumference thereof to supply the toner contained in the toner receptacle to the developing roller, and a cleaning unit to

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shake the fur of the toner supplying roller to remove the toner from the toner supplying roller." For at least the reasons discussed below, Applicant respectfully submits that JP 665 fails to disclose at least "a toner supplying roller having fur disposed around a circumference thereof to supply the toner contained in the toner receptacle to the developing roller" and "a cleaning unit to shake the fur of the toner supplying roller to remove the toner from the toner supplying roller," as required by claim 23.

As described in the instant specification, the toner supplying roller may be formed in a fur brush shape, having a plurality of hairs of a fur (such as a nylon or an acryl) attached to the roller. See paragraphs [0034] and [0036] and Fig. 3. The toner supplying roller supplies toner from the furs to a developing. See paragraph [0035]. The cleaning unit removes residual toner from the plurality of hairs of the fur to prevent the fur from being impregnated with the residual toner. See paragraphs [0036] and [0040]. As the fur supplies toner from the toner supplying roller to the developing roller, the fur is clearly not itself a toner.

JP 665 discloses a scraping means to scrape a developer sticking to the surface of a developer carrier. In particular, JP 665 discloses a dielectric belt 18, a developer roller 15 to develop an image on the dielectric belt 18, a supplement roller 11 to provide toner to the developer roller 15, and first scraper 14 to scrape a toner layer 8a from the peripheral surface of the supplement roller 11. See the abstract and Fig.2. JP 665 is silent regarding a supplying roller having fur disposed around a circumference thereof to supply toner to a developing roller. JP 665 is also silent regarding a cleaning unit to shake fur of a toner supplying roller to remove toner. In fact, as illustrated in Fig. 2 of JP 665, the supplement roller 11 clearly does not include any furs. Furthermore, JP 665 discloses that the scraper 14 scrapes toner from the peripheral surface of the supplement roller 11, and not from a fur of the supplement roller 11. Accordingly, JP 665 fails to disclose "a toner supplying roller having fur disposed around a circumference thereof to supply the toner contained in the toner receptacle to the developing roller" and "a cleaning unit to shake the fur of the toner supplying roller to remove the toner from the toner supplying roller," as required by claim 23.

For at least the reasons discussed above, JP 665 fails to disclose every limitation of claim 23. Specifically, JP 665 fails to disclose at least "a toner supplying roller having fur

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disposed around a circumference thereof to supply the toner contained in the toner receptacle to the developing roller, and a cleaning unit to shake the fur of the toner supplying roller to remove the toner from the toner supplying roller," as required by claim 23. Accordingly, JP 665 does not anticipate claim 23. Reconsideration and withdrawal of this rejection are respectfully requested.

C. §103 Rejection Over JP 763 in view of JP 778

The Office Action rejects claims 7-10, 12, 13, 22, 24, and 25 under 35 U.S.C. §103(a) as being obvious over JP 763 (the English-language abstract of Japanese Patent No. 8-146763) in view of JP 778 (the English-language abstract of Japanese Patent No. 63-075778). Applicant respectfully traverses this rejection at least the reasons stated below.

1. Claims 7-10, 12, 13, and 22

Independent claim 7 is directed to "a developing unit ... comprising ... a cleaning roller to remove the toner from the toner supplying roller." Claims 8-10, 12, 13, and 22 depend from claim 7 and include all of its limitations. For at least the reasons discussed below, Applicant respectfully submits that JP 763, alone or in combination with JP 778, fails to disclose or suggest at least the claimed cleaning roller of claims 7-10, 12, 13, and 22.

JP 763 discloses a developing device that includes a developing roller 6, a supply roller 8 to carry toner to the developing roller 6, and a cleaning member 14 to remove toner sticking to the supply roller 8. See the Abstract and Fig. 1. The cleaning member 14 of JP 763 is not a roller, and instead is a rectangular sheet, as described at paragraph 30 and Fig. 1 of JP 763. As acknowledged at p. 3, paragraph 3, of the Office Action, JP 763 fails to disclose or suggest "a cleaning roller to remove the toner from the toner supplying roller," as required by claims 7-10, 12, 13, and 22.

JP 778 discloses a photosensitive body 6, a developing roller 2, and a cleaning roller 4 to rub against the peripheral surface of the developer roller 2 to eliminate a fixed toner and a residual toner on the peripheral surface of the developer roller 2. See the abstract and Figs. 1-3. However, JP 778 is silent regarding a supplying roller, and is silent regarding a cleaning roller to remove toner from a supplying roller. Accordingly, JP 778 fails to remedy the

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deficiencies of JP 763. Specifically, JP 778 also fails to disclose or suggest "a cleaning roller to remove the toner from the toner supplying roller," as required by claims 7-10, 12, 13, and 22.

For at least the reasons discussed above, JP 763, alone or in combination with JP 778, fails to disclose or suggest every limitation of claims 7-10, 12, 13, and 22. Specifically, JP 763, alone or in combination with JP 778, fails to disclose or suggest at least "a cleaning roller to remove the toner from the toner supplying roller," as required by claims 7-10, 12, 13, and 22. Accordingly, claims 7-10, 12, 13, and 22 would not have been obvious over JP 763, alone or in view of JP 778. Reconsideration and withdrawal of the rejection are respectfully requested.

2. Claim 24

Claim 24 is directed to "a method ... comprising removing residual toner remaining on the toner supplying roller with a cleaning roller after the toner supplying operation." For at least the reasons discussed below, Applicant respectfully submits that JP 763, alone or in combination with JP 778, fails to disclose or suggest at least "removing residual toner remaining on the toner supplying roller with a cleaning roller after the toner supplying operation," as required by claim 24.

JP 763 and JP 778 are discussed above in Section C 1. As discussed above, and as acknowledged by the Office Action, JP 763 fails to disclose or suggest a cleaning roller to clean a toner supplying roller. Accordingly, JP 763 fails to disclose or suggest "removing residual toner remaining on the toner supplying roller with a cleaning roller after the toner supplying operation" as required by claim 24. Also as discussed above, JP 778 is silent regarding a supplying roller, and is silent regarding a cleaning roller to remove toner from a supplying roller. Accordingly, JP 778 fails to remedy the deficiencies of JP 763. Specifically, JP 778 also fails to disclose or suggest "removing residual toner remaining on the toner supplying roller with a cleaning roller after the toner supplying operation," as required by claim 24.

For at least the reasons discussed above, JP 763, alone or in combination with JP 778, fails to disclose or suggest every limitation of claim 24. Specifically, JP 763, alone or in combination with JP 778, fails to disclose or suggest at least "removing residual toner remaining on the toner supplying roller with a cleaning roller after the toner supplying operation," as

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required by claim 24. Accordingly, claim 24 would not have been obvious over JP 763, alone or in view of JP 778. Reconsideration and withdrawal of the rejection are respectfully requested.

3. Claim 25

Claim 25 is directed to "a method ... comprising ... removing the toner remaining on a toner supplying roller with a cleaning roller." For at least the reasons discussed below, Applicant respectfully submits that JP 763, alone or in combination with JP 778, fails to disclose or suggest at least "removing the toner remaining on a toner supplying roller with a cleaning roller," as required by claim 25.

JP 763 and JP 778 are discussed above in Section C 1. As discussed above, and as acknowledged by the Office Action, JP 763 fails to disclose or suggest a cleaning roller to clean a toner supplying roller. Accordingly, JP 763 fails to disclose or suggest "removing the toner remaining on a toner supplying roller with a cleaning roller," as required by claim 25. Also as discussed above, JP 778 is silent regarding a supplying roller, and is silent regarding a cleaning roller to remove toner from a supplying roller. Accordingly, JP 778 fails to remedy the deficiencies of JP 763. Specifically, JP 778 also fails to disclose or suggest "removing the toner remaining on a toner supplying roller with a cleaning roller," as required by claim 25.

For at least the reasons discussed above, JP 763, alone or in combination with JP 778, fails to disclose or suggest every limitation of claim 25. Specifically, JP 763, alone or in combination with JP 778, fails to disclose or suggest at least "removing the toner remaining on a toner supplying roller with a cleaning roller" as required by claim 25. Accordingly, claim 25 would not have been obvious over JP 763, alone or in view of JP 778. Reconsideration and withdrawal of the rejection are respectfully requested.

D. Conclusion

It is respectfully submitted that a full and complete response has been made to the outstanding Office Action and, as such, there being no other objections or rejections, this application is in condition for allowance, and a notice to this effect is earnestly solicited.

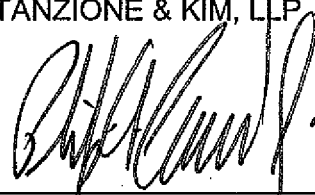
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If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided below.

If any further fees are required in connection with the filing of this amendment, please charge the same to our Deposit Account No. 502827.

Respectfully submitted,

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